PROC. ENTOMOL. SOC. WASH.
85(2), 1983, pp. 217–221

A NEW SPECIES OF *DICTYA* FROM IDAHO (DIPTERA: SCIOMYZIDAE)

R. E. Orth and T. W. Fisher

Department of Entomology, Division of Biological Control, University of California, Riverside, California 92521.

Abstract.—A new species, *Dictya* ***zacki***, is described from Latah County, Idaho. The terminalia of this species shows similarities with *D. hudsonica* Steyskal, *D. lobifera* Curran, *D. pechumani* Valley, and *D. stricta* Steyskal. Illustrations of the new species are included.

The genus *Dictya* is widespread on the North American continent. Twenty-five species are now known to occur north of Mexico, while eight species occur in Mexico, three in Central America, and one in South America. Distributional overlap between countries does occur among certain of these species. The southernmost species, *D. bergi* Valley, has been recorded from Costa Rica and Colombia. *Dictya insularis* Steyskal is known only from Puerto Rico. *Dictya pechumani* Valley is the only species found in Bermuda and the Bahama Islands, and it is also found along the east and gulf coasts of the United States. *Dictya umbrarum* (Linnaeus) is the only recognized Palaearctic species. The above species, 32 in all, constitute the known species of *Dictya* of the world. In addition, several more New World species are recognized by Karl Valley, Pennsylvania Department of Agriculture, Harrisburg, Pennsylvania, and await description.

The first comprehensive taxonomic work on *Dictya* was written by Steyskal (1954). A second in-depth work was by Valley and Berg (1977). Foote (1961) gave distribution and taxonomic notes on the sciomyzids of Idaho. The species of *Dictya* he listed from that state were: *D. expansa* Steyskal, *D. montana* Steyskal, and *D. stricta* Steyskal. Examination of Foote's *D. stricta* material reveals that those specimens must now be assigned to *D. hudsonica* Steyskal. No additional species are known from Idaho. In our correspondence with Karl Valley in 1976, he stated "*Dictya hudsonica* and *D. stricta* have been misidentified and distribution records are not always accurate. These 2 species are largely allopatric, *hudsonica* occurring almost exclusively north of 40° North Latitude and *stricta* occurring most commonly south of 40° North Latitude." Further, all known collecting sites of *D. stricta* are east of 100° longitude.

Dictya is characterized as follows: propleural bristle absent, anal vein clearly reaching wing margin, vallar bristles absent, ocellar and postocellar bristles well developed, wing heavily patterned with black and whitish translucent spots or markings on a grayish background, one parafrontal bristle, and face with a central dark spot. Within the genus, species separation is extremely difficult because of the similarity in external morphology. In most instances determinations can be

Fig. 1. *Dictya zacki,* holotype male. Abdominal segments excised and retained in genitalia vial on pin beneath specimen. Photo by M. E. Badgley, University of California, Riverside.

made only by examination of the genitalia. Written descriptions of genitalia cannot adequately impart comparative differences between closely related species. Therefore illustrations by Steyskal (1954, 1960), Fisher and Orth (1969), and Valley and Berg (1977) should be consulted in order to diagnose, accurately, these differences. In many species, females also possess terminalia characters by which they can be separated.

Dictya zacki Orth and Fisher New Species
Figs. 1–4

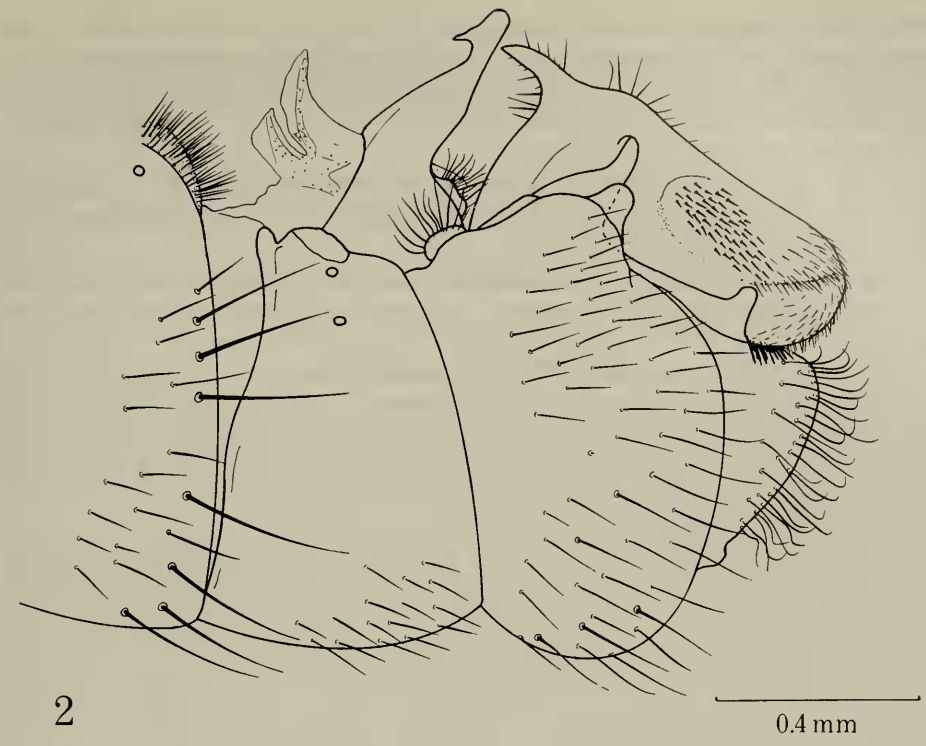
Holotype male.—*Head:* Face white with black, elongate central spot; parafrontal spot brownish; 2nd antennal segment wholly pruinose, as long as high; arista with sparse black hairs.

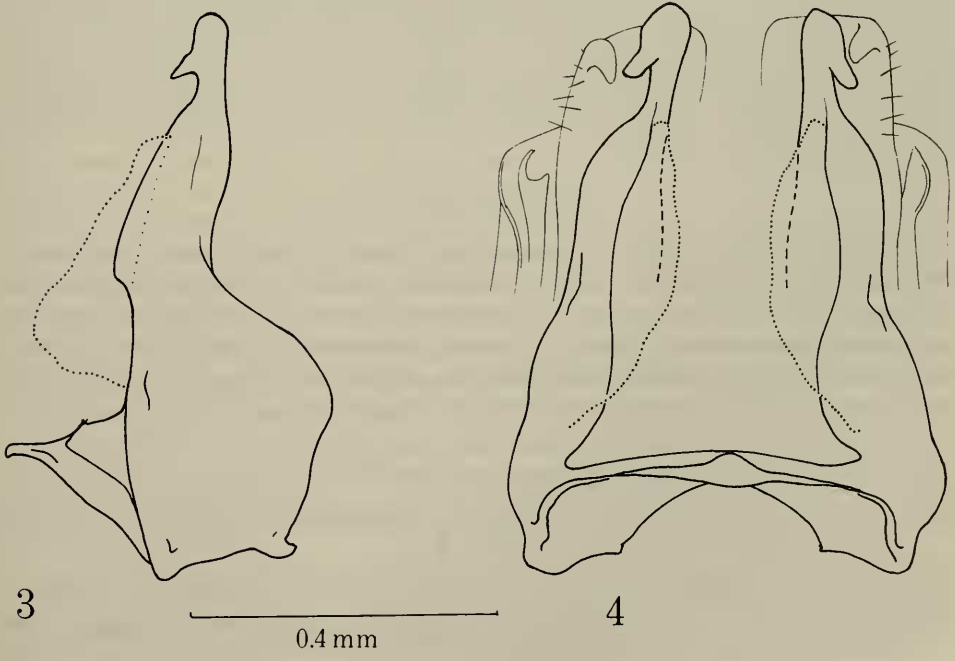
Thorax: Mesopleuron and pteropleuron each with a strong bristle; prosternum without hairs. Wing length 4.85 mm.

Genitalia: Surstylus with dorsal tip strongly projecting. Ventral process of hypandrium with preterminal lobe sharply pointed, directed moderately anterolaterally. Distal end of hypandrium rounded; ventral processes parallel. Ventral process of epandrium with posterior lobe large, rounded, directed posteroventrally; anterior lobe small, flattened.

Female.—Not known.

Diagnosis.—Species whose terminalia most closely resemble *Dictya zacki* are *D. hudsonica, D. stricta,* and *D. lobifera* Curran. In these species the distal end of the ventral process of the hypandrium is pointed and the preterminal lobe is directed straight forward. However, in *D. zacki* the distal end of the hypandrium





Figs. 2–4. *Dictya zacki,* holotype male. 2, Postabdomen, lateral view, inverted. 3, Hypandrium, lateral view, inverted. 4, Hypandrium, anterior view, inverted.

is blunted or rounded while the preterminal lobe is directed anterolaterally. The ventral process of the hypandrium of *D. pechumani* also closely resembles that of *D. zacki*. Differences in these two species lie in the surstyli. In *Dictya pechumani* the surstylus has a small, non-projecting dorsal tip, and in *D. zacki* the surstylus has a strongly projecting dorsal tip.

Holotype male.—Idaho: Latah Co., Laird Park, 4mi NE Harvard, VII-16-1978, R. S. Zack, Washington State University. Deposited in the National Museum of Natural History, Washington, D.C.

Etymology.—This species is named after Richard S. Zack, Entomology Department, Washington State University, Pullman, who collected the type-specimen.

Notes.—During the summer of 1981 the senior author had the opportunity to visit the type-locality with R. S. Zack in an effort to collect additional specimens of this new species. Unfortunately the only species of *Dictya* collected at the type-locality was *Dictya montana*. Prior and subsequent collections by R. S. Zack have yielded no further specimens of *D. zacki*.

The type-locality is a small ponded area, roughly hourglass in shape, on a canyon floor bounded by well-forested slopes in the Idaho Panhandle National Forest. The type-specimen was collected by sweep net in *Typha* growing in the isthmus connecting the two main pond areas. There is a slight flow of water through the length of the ponded area. At the lower end it seeps back into an active stream which parallels the ponds but is separated from them by a low broad hummock.

Discussion.—The type-specimen was collected prior to the volcanic eruption of Mt. St. Helens, Washington, May 18, 1980, an event of cataclysmic proportions. The explosion tore an area 1350 feet (411 m) in height from the bulging north face of the mountain. Smoke and ash ascended 60,000 feet (18,288 m) and prevailing winds spread ash over parts of three states. The type-locality of *Dictya zacki* was hard hit by the fine, grey powder ash fallout. It is possible that this rare species will not be seen again due to this upset in nature. It has been observed by us that sciomyzids collected in the field with a cross section of other insects are among the first to die when held in a cage or container, indicating the frailty of some to adverse conditions.

Acknowledgments

We gratefully acknowledge the assistance of Clifford O. Berg, Cornell University, Ithaca, New York; Benjamin A. Foote, Kent State University, Kent, Ohio; Lloyd Knutson, IIBIII, USDA, Beltsville, Maryland; George C. Steyskal, Systematic Entomology Laboratory, USDA, c/o National Museum of Natural History, Washington, D.C.; Karl Valley, Pennsylvania Department of Agriculture, Harrisburg, and Richard S. Zack, Washington State University, Pullman.

Literature Cited

Fisher, T. W. and R. E. Orth. 1969. A new *Dictya* in California, with biological notes (Diptera: Sciomyzidae). Pan-Pac, Entomol. 45(3): 222–228.

Foote, B. A. 1961. The marsh flies of Idaho and adjoining areas (Diptera: Sciomyzidae). Am. Midl. Nat. 65(1): 144–167.

Steyskal, G. C. 1954. The American species of the genus *Dictya* Meigen (Diptera: Sciomyzidae). Ann. Entomol. Soc. Am. 47(3): 511–539.

———. 1960. New North and Central American species of Sciomyzidae (Diptera: Acalyptratae). Proc. Entomol. Soc. Wash. 62(1): 33–43.

Valley, K. and C. O. Berg. 1977. Biology, immature stages and new species of snail-killing Diptera of the genus *Dictya* (Sciomyzidae). Search Agric., Entomol. (Cornell Univ., Ithaca, N.Y.) 18, 7(2): 1–45.

PROC. ENTOMOL. SOC. WASH.
85(2), 1983, p. 221

NOTE

Variation in Chaetotaxy in *Cynomyopsis cadaverina* (Robineau-Desvoidy) (Diptera: Calliphoridae)

Variation in chaetotaxy of muscoid flies has received considerable attention in the past. Hough (1899. Zool. Bul. 2: 283–290) reported that 18% of the *Cynomyopsis cadaverina* (Robineau-Desvoidy) he examined showed some sort of chaetotaxal variation. Most of the variant specimens he examined showed unilateral presence or absence of a macrochaeta with only a very few exhibiting bilateral variation. Hall (1948. Thomas Say Found. Vol. 4, 477 pp.) commented that in a number of reared blow fly specimens obtained from several sources in the United States, reduction and duplication of bristles occurred in the dorsocentral or acrostichal series in less than 5% of the individuals. James (1967. Ann. Entomol. Soc. Am. 60: 706) discussed variation in chaetotaxy in another blow fly, *Phaenicia sericata* (Meigen). He described a series of 22 individuals with a decreased number of postacrostichal bristles. Hall and Townsend (1977. Va. Polytech. Inst. State Univ. Res. Div. Bull. 123, 48 pp.) also reported a number of blow flies with a reduced number of postacrostichals most often occurring unilaterally.

In a study of Mississippi blow flies, several specimens of *C. cadaverina* were found with variant chaetotaxy. A total of five out of 78 carefully examined specimens were found to vary in the number of postacrostichal bristles from the normal two pairs. Four specimens were found with only one pair of postacrostichals and one had three pairs. Often, large individuals of a species have more strongly developed bristles than do small individuals of the same species. Likewise, weak bristles tend to become hairlike and may be overlooked unless searched for carefully. However, in this study the variant specimens are all essentially normal sized.

Available blow fly keys separate *C. cadaverina* from other related Caliphorinae according to the presence of two postacrostichal bristles. One or three postacrostichals separate the flies into two other genera, *Cynomya* and *Cyanus,* respectively. In light of this, taxonomists working with this group should be aware of this type of variation. When doubt exists, the male genitalia should be exposed and compared with the drawings provided by Hall (1948).

I thank Raymond J. Gagné, Systematic Entomology Laboratory, USDA, Washington, D.C., for identifications and for suggestions in preparing the manuscript, and B. R. Norment, Entomology Department, Mississippi State University, for helpful comments.

Jerome Goddard, *Department of Entomology, Mississippi State University, Mississippi State, Mississippi 39762.* (Publication number 5286 of the Mississippi Agricultural and Forestry Experiment Station.)